

# DIGITAL LASER DISTANCE METER

## LD05-A80



The *RIEGL* LD05-A80 is a multi-purpose laser distance meter based on precise time-of-flight laser range measurement. It uses state-of-the-art **digital signal processing** enabling precise distance measurement for complex multi-target situations even under bad visibility conditions. Digitizing the echo signal and subsequent analyzing allows multi-target distance measurements. Up to 5 target distances can be detected and provided for each laser shot.

The **digitized waveform data** can be logged to either an internal memory card or a TCP/IP data port. Subsequent offline **full wave form analysis** allows detailed investigation of the target situation, especially with complex target situation

The *RIEGL* LD05-A80 can be configured for various application modes:

- **High Penetration and High Accuracy Mode** for complex target situations, based on a sequence of laser shot measurements, self-adapting (rather low) data update rate, significant enhancement of the maximum range based on Pre-Detection-Averaging.
- **Fast Mode** is between High Speed and High Penetration Mode.
- **High Speed Mode** for simple target situations, high data update rate.

- Short infrared laser pulses providing **excellent interference immunity**
- Narrow measurement beam with low divergence for **excellent spatial resolution**
- **Measurement to almost any surface** regardless of the angle of incidence of the beam and the surface characteristics
- Lightweight, stable aluminium housing, ready to be used in **harsh industrial environments**.
- Different basic instrument types with pre-configured measurement modes, but also **individually programmable for customer specific applications**.

visit our webpage  
[www.riegl.com](http://www.riegl.com)



# Technical Data LD05-A80

## Real Time Range Measurement Mode:

### Specifications

Examples for integrated predefined measurement programs:

#### High Penetration and High Accuracy Mode

<b>Max. measurement range</b> <sup>1) 2)</sup> for natural targets, $\rho \geq 80\%$ for natural targets, $\rho \geq 10\%$	up to 3000 m up to 1000 m
<b>Min. measurement range</b>	10 m
<b>Measurement accuracy</b> <sup>3) 4)</sup>	typ. $\pm 25$ mm
<b>Repeatability</b> <sup>3) 4)</sup>	15 mm
<b>Measurement rate</b> <sup>5)</sup>	typ. 50 Hz
<b>Max. number of targets</b>	5

#### Fast Mode

<b>Max. measurement range</b> <sup>1) 2)</sup> for natural targets, $\rho \geq 80\%$ for natural targets, $\rho \geq 10\%$	up to 1650 m up to 580 m
<b>Min. measurement range</b>	10 m
<b>Measurement accuracy</b> <sup>3) 4)</sup>	typ. $\pm 35$ mm
<b>Repeatability</b> <sup>3) 4)</sup>	15 mm
<b>Measurement rate</b>	500 Hz
<b>Max. number of targets</b>	5

#### High Speed Mode

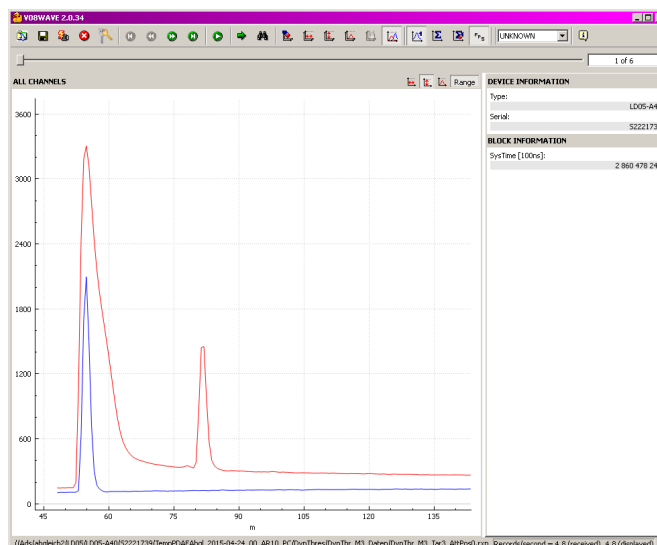
<b>Max. measurement range</b> <sup>1) 2)</sup> for natural targets, $\rho \geq 80\%$ for natural targets, $\rho \geq 10\%$	up to 950 m up to 330 m
<b>Min. measurement range</b>	10 m
<b>Measurement accuracy</b> <sup>3) 4)</sup>	typ. $\pm 50$ mm
<b>Repeatability</b> <sup>3) 4)</sup>	15 mm
<b>Measurement rate</b>	5000 Hz
<b>Max. number of targets</b>	5

- 1) The following conditions are assumed
  - target is larger than footprint of laser beam, • perpendicular angle of incidence, • visibility 10 km
  - typical values for average ambient brightness conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 2) Not specified for retroreflectors.
- 3) One sigma standard deviation @ 50 m range under *RIEGL* test conditions.
- 4) Plus distance depending error  $\leq \pm 20$  ppm.
- 5) With self-adapting measurement time selected, the effective data update rate depends on the number of targets and their reflectivity and distance.

# Technical Data LD05-A80

## Full Waveform Mode (Optional):

The digitized waveform data can be logged to either an internal memory card or to a TCP/IP data port. Subsequent offline full waveform analysis allows detailed investigation of the target situation, especially with complex target situations.



## Laser Specifications

<b>Wavelength</b>	near infrared
<b>Beam divergence</b> <sup>1)</sup>	typ. 0.8 mrad
<b>Laser product classification</b> according to IEC 60825-1:2014  The following clause applies for instruments delivered into the United States: Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice No. 56, dated May 8, 2019.	<b>Laser Class 1M</b>  <div data-bbox="901 1216 1233 1370" data-label="Image"> </div> <p>Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.</p>

1) 0.8 mrad correspond to 80 cm beam width per 1000 m distance.

# Technical Data LD05-A80

## General Technical Data

<b>Data interfaces</b>  Data port Configuration port WEB interface	TCP/IP, 10/100/1000 MBit port or RS232/RS422 TCP/IP, 10/100/1000 MBit port or RS232/RS422 TCP/IP
<b>Power supply</b>	11 – 28 V DC, 24 VDC nominal
<b>Power consumption</b>	18 W
<b>Main dimensions</b> <sup>1)</sup> (L x W x H) mm	322 x 250 x 110
<b>Weight</b>	approx. 6.4 kg
<b>Protection class</b>	IP64
<b>Temperature range</b> Operation Storage	-5°C up to +45°C <sup>2)</sup> -20°C up to +60°C <sup>2)</sup>
<b>Telescope</b>	magnification 2.5 x 20
<b>Analog Output</b>  <b>Switching Output</b>	4 – 20 mA <sup>3)</sup> , not galvanically isolated, resolution 16 Bit, linearity 1 ‰ of full scale  2 x PNP transistor driver <sup>4)</sup> , built-in thermal and short-circuit protection, switching current 200 mA max., switching voltage = supply voltage

1) See dimensional drawings, dimensions without telescope

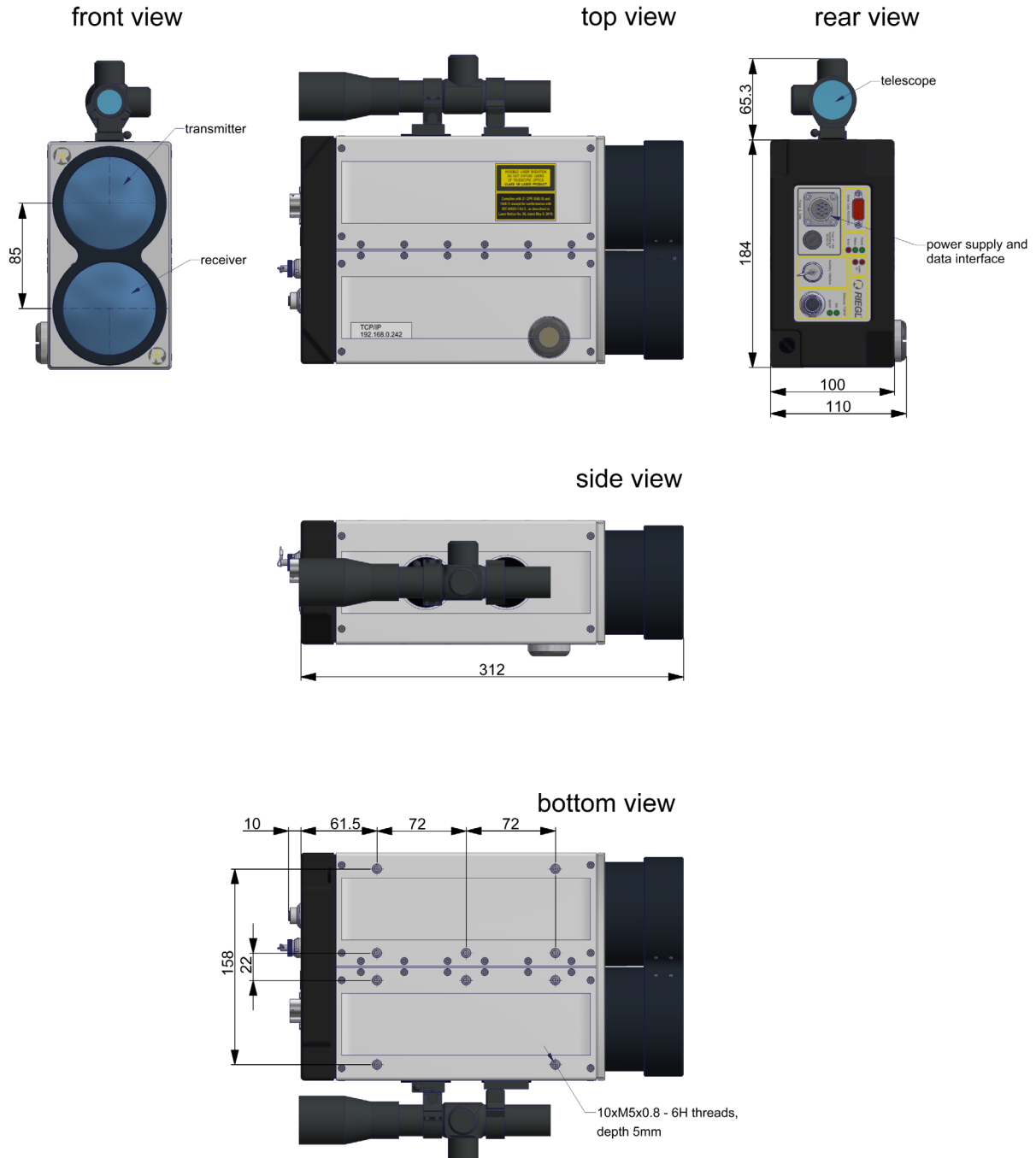
2) The life expectancy (MTBF) of the instrument is reduced in case of operation and/or storage at high temperatures.

3) Operating range selectable via TCP/IP port or serial interface.

4) Switching points adjustable via TCP/IP port or serial interface.

# Technical Data LD05-A80

## Dimensional Drawings



All dimensions in mm

Copyright RIEGL Laser Measurement Systems GmbH © 2019 – All rights reserved. Use of this data sheet other than for personal purposes requires RIEGL's written consent. This data sheet is compiled with care. However, errors cannot be fully excluded and alternations might be necessary. Data Sheet, RIEGL LD05-A80, 2019-10-17, page 5 of 5